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The Case for Product Stewardship – A Shaw Perspective

“Sustainability through Innovation™ – That’s the Shaw Green Edge®”

SHAW INDUSTRIES GROUP, INC.

Russ DeLozier, Presentation to EPA Region V

Mar 17, 2011

Outline

- Shaw Industries Group Overview
- Sustainability Strategy
- Cradle to Cradle Strategy
- Eco Products
- Innovation & Reclamation
- LCA Considerations





Introduction

- World's largest carpet manufacturer
- Headquartered in Dalton, Georgia
- Founded in 1967
- Annual revenue of \$4 billion
- Global provider of carpet, rugs, hardwood, laminate, tile & stone, turf and services for residential and commercial markets
- World's largest carpet fiber producer

Our People

- 26,000 associates living the values of **honesty, integrity, & hard work**
- Largest manufacturing employer in Georgia
- Valuing the perspectives and talents of diverse people
- Shaw Learning Academy named a Top 125 Training Company by *Training Magazine*
- Named 50 Best Companies to Sell For by *Selling Power Magazine*



Financial Strength

- Wholly owned subsidiary of Berkshire Hathaway since 2001
- Debt-free balance sheet
- Strong cash flow during down market
- Annual capital investments of \$200 million – equipment, technology, systems & logistics
- Remained profitable during down market



Our Products

- Award-winning product development teams creating the most beautiful flooring in the world
 - Carpet
 - Carpet Tile
 - Area Rugs
 - Hardwood
 - Laminate
 - Tile & Stone
 - Carpet Cushion
 - Turf



Vertical Integration

- Fully vertically integrated manufacturing and supply chain
- Manufacturer of nylon monomer and polymer
- Largest carpet fiber extrusion capacity in the world
- Integrated backing producer
- Focused and dedicated carpet manufacturing
- 14th largest private transportation fleet





Corporate Strategic Objectives

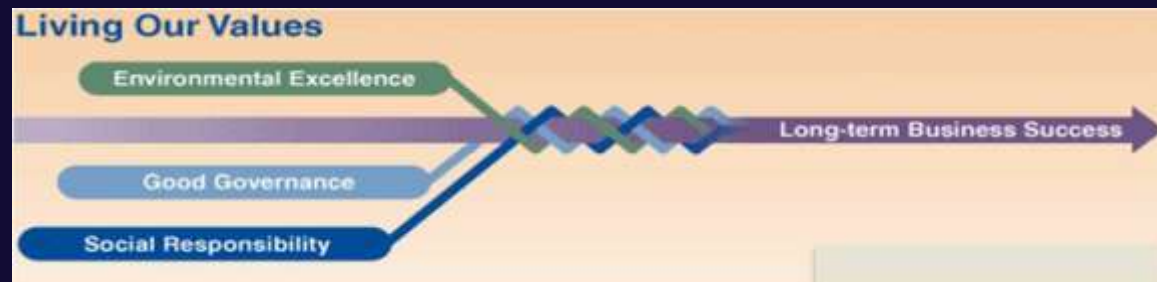
- **Safety** and health of our associates
- Growing our business and **exceeding customer expectations**
- Being the **employer of choice** for a talented and diverse workforce
- **World-class performance** in key business metrics
- **Innovation** leadership
- **Sustainability** and environmental leadership
- **Exceeding Berkshire Hathaway's expectations** for return on invested capital

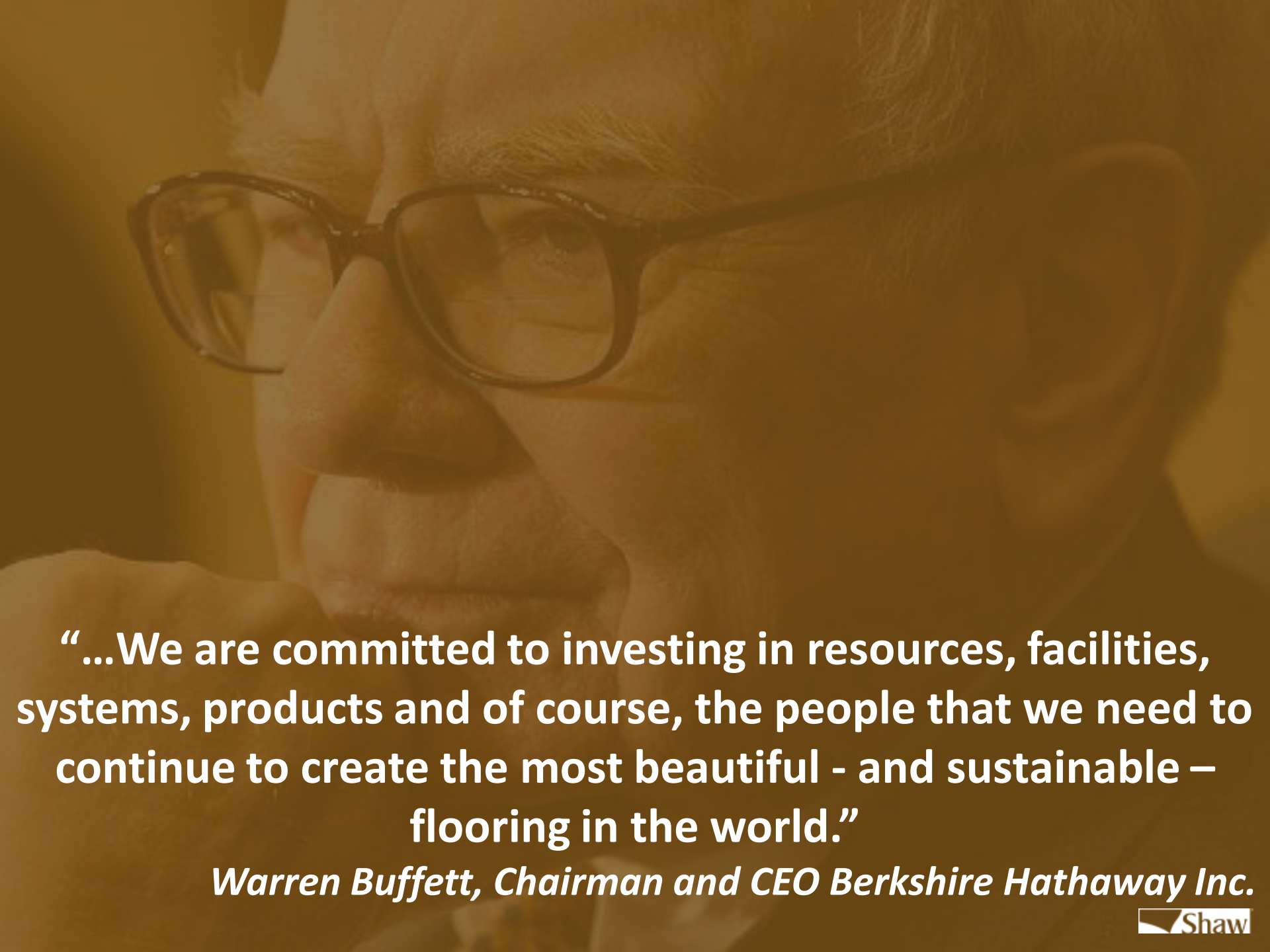


Sustainability through Innovation™
That's the Shaw Green Edge®

The Business Case For Sustainability at Shaw

- aligns with our **Values and Vision**
- **transformative** business strategy
- positions company for the **future**
- responds to stakeholder **expectations**
- creates **value** (tangible and intangible)
- drives **innovation** across value chain
- **integral** to Shaw's core strategy and business model over long term
- reinforces industry **leadership**





“...We are committed to investing in resources, facilities, systems, products and of course, the people that we need to continue to create the most beautiful - and sustainable – flooring in the world.”

Warren Buffett, Chairman and CEO Berkshire Hathaway Inc.

Commitment from the Top

“Since our founding, we’ve worked hard to become a world-class company in the eyes of our most important audience: our customers. And we’re driven by one simple question:

What will our company look like ten, twenty, even forty years from now?”

- Vance Bell

We are committed to creating the most beautiful – and sustainable – flooring in the world. And to help create a better planet for our customers, our people, and our communities in the process.



Senior Management Group

Manufacturing

Administration/Controlling

Innovation

Enterprise Excellence

Residential Business

Commercial Business

Hard Surfaces Business

Human Resources

Rugs Business

Sourcing/Procurement

Chief Counsel

Logistics/Distribution

Marketing Residential

Marketing Commercial

Chief Information Officer

Sustainability & Environmental
Affairs (Chair)

Facilitator

Growth & Sustainability Council

- Action body offering initiatives and options for sustainability & growth
- Define vital strategic goals for sustainable growth
- Align perspectives and priorities around key initiatives, options, goals, metrics
- Define work teams and accountability for key goals and initiatives



Areas of Focus

- Materials Recovery & Stewardship
- A Shaw Family of “Eco” Products
- A Sustainable Energy & Water Strategy
- Environmental Health & Safety Excellence
- Corporate Social Responsibility
- Growth & Sustainability Financial Roll-up Statement



Social Responsibility

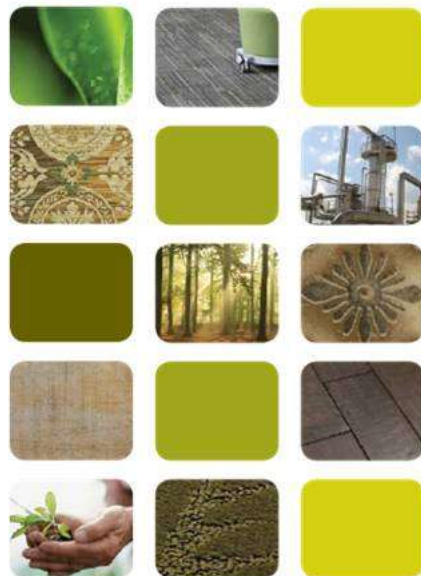
- Shaw and Shaw associates annually contribute countless hours and over \$2M to support **United Way**
- Partnered with Brad Pitt's **Make It Right** foundation to support rebuilding New Orleans
- Operating the country's largest **Prison Industry Enterprise** program through Anderson Hardwood in South Carolina
- Support "**The 1%**" program of Public Architecture
- Our associates give their money and time generously to **hundreds of organizations**



SUSTAIN : strength amidst change

shaw industries sustainability report

2008



2nd Annual Sustainability Report

- Shaw led the way with the first comprehensive Sustainability Report in floorcovering industry
- Covers “Triple Bottom Line” of sustainability practices – economic, environmental, social
- Overall strategy and specific, measurable, time-driven goals in key sustainability performance areas
- 2010 Report will conform to Global Reporting Initiative (GRI)

available on-line at www.shawgreenedge.com



Cradle to Cradle



We realized WE had to do more.

Cradle to CradleSM

Philosophy

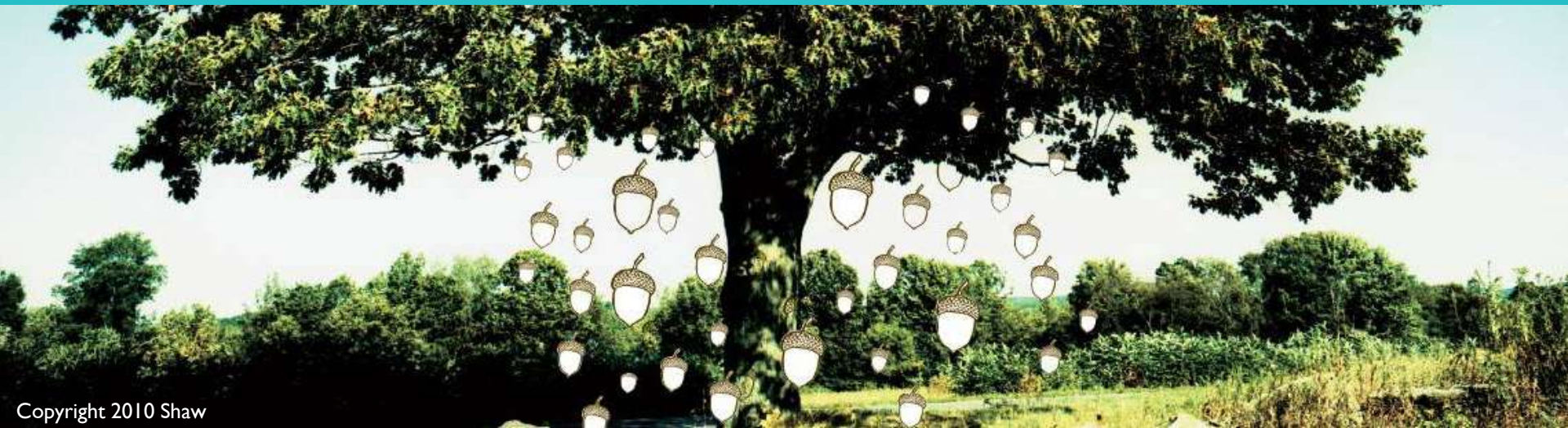
- Design with the total product lifecycle in mind
- Waste nothing
- Design products with a continuous cycle of use for the materials used in those products
- At the end of their useful lives, Cradle to Cradle products can be reclaimed, disassembled and remanufactured back into themselves.
- Over and over again.



Cradle to Cradle Solutions

WASTE = FOOD

There is no waste in nature.



Cradle to CradleSM Certification

- Certification by McDonough Braungart Design Chemistry (MBDC)
- Components
 - Using environmentally **safe and healthy materials**
 - Design for **material reutilization**, such as recycling or composting
 - The use of **renewable energy and energy efficiency**
 - Efficient use of **water**, and maximum water quality associated with production
 - Instituting strategies for **social responsibility**

Shaw is the only carpet and hardwood flooring manufacturer in the world with Cradle to Cradle Silver certified products.

Cradle to Cradle (C2C) Products



Anso[®] NYLON FIBER

- SCS Certified 25% post-consumer recycled content
- Abrasion resistant with limited lifetime warranties
- Cradle to CradleSM certified
- Superior durability and stain resistance



GREEN.

It's something we never forget[®]



ClearTouch®

BCF POLYESTER FIBER

- UL Environment Certified 25% post-consumer recycled Polyester (PET) content
- Millions of pounds of PET bottles are now recycled to manufacture BCF ClearTouch® carpets. This patent-pending innovation is unique to standard manufacturing processes of PET BCF fibers.
- ClearTouch® yarn systems offer exceptional softness and durability
- All ClearTouch® carpet styles feature Shaw's patented R2x® Stain and Soil Resistance System



Epic[®] HARDWOOD



- Made with EnviroCore, a dense inner layer composed of recycled wood fiber
- Uses 50% less newly harvested wood than traditional engineered hardwood
- Offers beauty, durability, and performance
- Cradle to CradleSM certified
- All Shaw hardwood flooring products are now GREENGUARD Children & SchoolsSM Certified



EcoWorx® TILE BACKING

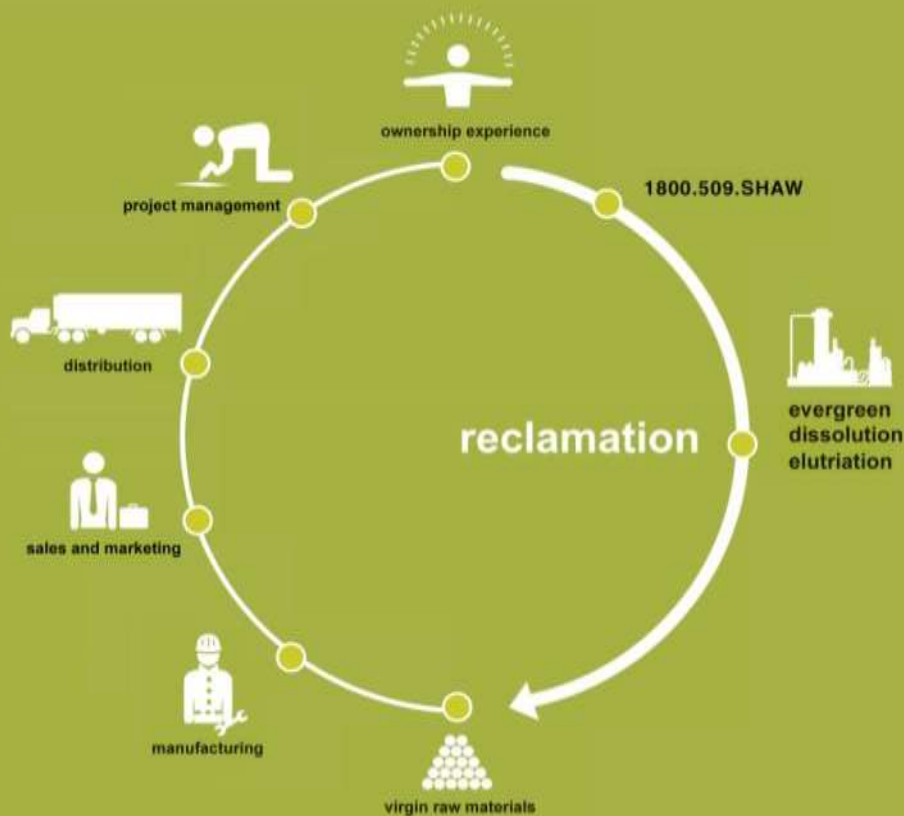
- 100% **PVC & phthalates free**
- Contains 40% **recycled content**
- Backed with an **environmental guarantee** for free cradle-to-cradle recycling
- 1999 Best of NeoCon **Innovation** award
- Environmental Protection Agency (EPA) **Presidential Green Chemistry** award
- **Cradle to Cradle**™ certified
- EcoWorx Carpet Tile NSF-140 certified





Reclamation

Reclamation



- Currently, 3.6B pounds of carpet end up in landfills, making it one of the largest waste contributors.
- Shaw takes responsibility for our products at the end of their useful lives.
- Nationwide Carpet Collection Network
- Collected over 440M pounds since 2006

Shaw Green Edge Recycling Network





Reclamation is just the beginning

- Carpet separated by face fiber and backing type into different streams
 - 85% recycled carpet-to-carpet at our Evergreen facility
 - 14% recycled carpet-to-energy
 - 1% downcycled carpet to other products
- In the past two years, recycled more post-consumer carpet than all other carpet and fiber manufacturers combined
- 2008 EPA/CARE Innovation in Recycling Award



Processes

Evergreen

Where Nylon 6 Becomes More Nylon 6

- World's largest type 6 nylon recycling facility – first and only process of its kind in Carpet Industry
- Purchased in 2005, invested over \$30 million to improve efficiencies and capacity
- Produces virgin grade caprolactam from type 6 nylon post-consumer carpet
- Recycles 80-100 million pounds of post-consumer type 6 nylon carpet per year
- Saves oil in the process
- Co-product recycled for energy recovery and EcoWorx filler – first to do so.

2009 EPA/CARE Innovation in Recycling Award

2009 Floorcovering Weekly Sustainability “Process” Award

2008 CARE Large Recycler of the Year Award

2009 Winner AFA FloorTek Environmental Leadership Award



start the revolution



We operate a nationwide collection system to collect carpet at the end of its useful life. Give us a call at 1-800-509-SHAW.



shredding

The carpet and backing are shredded into smaller bits.



grinding

The carpet and backing are ground into a coarse mixture.

Elutriation process

First and only process of its kind in Carpet Industry



elutriation

The backing and fiber elements are separated based on their weight, using air flow and gravity.

backing polymer

The pure backing polymer is ready to be made into carpet once again.



recovered backing

The backing is sent off to be made into solid pellets.



Energy Recovery from by-products

- Gasification partnership with Siemens Building Technologies
- Capital investment of \$15 million
- Post-industrial waste coverts to steam energy to replace fossil fuel at one of our Dalton, GA plants
 - 50,000 lbs/hr of steam
 - Reduces use of coal-fired boilers
- Diverts waste from landfills in the communities where we live and work
- Last year
 - Utilized 10 million pounds of carpet waste and 11 million pounds of wood flour waste
 - Saved \$600K in energy costs
- Featured by Wall Street Journal, CNBC and other national media



Re2E

Energy Recovery from Reclamation

- Expansion of carpet reclamation and recycling
- New Re2E, or Reclaim-to-Energy, facility in Dalton, GA
- Started up in Dec 2010
- Fueled by reclaimed carpet materials from both internal manufacturing operations and post-consumer carpet collections
- Expected to convert more than **84 million pounds of reclaimed carpet materials into steam and electricity** for the manufacturing site per year



Clear Path Recycling

- Joint venture with DAK Americas, LLC
- Building the largest PET recycler in the United States
- Started operation in Fayetteville, NC in 4Q10
- New facility will:
 - Produce recycled PET from post-consumer PET bottles
 - Recycle 120 million pounds per year during start-up phase
 - Recycle 280 million pounds by 2012
 - Save over 1 million cubic yards of landfill space per year
 - Save 2.5 trillion BTUs of energy annually—equal to the energy required to power 18,000 U.S. homes per year





PET Bottle Recycling Process

Recovery



Bales



Sorting



Granulation



Carpet



BCF Yarn



Clear Flake



Outside sales



Green Flake



Flake Washing

Other Processes



- In late 2010, Shaw took an equity position in a startup company that utilizes post-consumer carpet (PCC) content in an innovated manner
- Erosion Control product for construction and demolition projects
- Superior performance over existing technologies

Which is more sustainable?

Wood, Linoleum, or Carpet?



Paper or Reusable mesh filter?



Sustainability Questions...

- How do you know which product is more sustainable?
- What do you consider? How do you characterize a product's carbon footprint?
 - Recyclability?
 - Energy Content?
 - Recycled Content?
 - VOC emissions?
 - Safety?
 - Carbon Content?
 - Others?

- Many Sustainability tools that focus on Economic, Social, and Environmental impacts
 - Product Certifications
 - MBDC Cradle to Cradle
 - NSF140
 - BRE (U.K.)
 - SMaRT
 - Many others...
 - Carbon calculators
 - Customer and retailer surveys
 - Etc...
- For product life cycle thinking, most rely in part on
 - Life Cycle Assessment [LCA] (especially for environmental)

Definition of Life Cycle Assessment (ISO 14040)

- A holistic assessment of the environmental impacts of a product/service throughout the entire life cycle...
 - Science based
 - Views of environmental trade-offs
 - Transparency into process and impacts



- **Scope:**
 - Identify boundaries of the LCA (i.e. cradle to cradle, cradle to gate, gate to gate)
 - Define functional unit (i.e. impacts per square yard)
- **Purpose:**
 - Identifying environmental aspects and impacts
 - Communicate these aspects to management, engineering and operations inside the organization
- **Uses:**
 - Marketing messaging
 - Purchasing decisions
 - Design and process decisions
 - Benchmarking (caution - need apples to apples comparisons)
 - Policy & regulatory influence

- ***External:*** Understand customer, and market needs.
 - Eco-labels (i.e. MBDC C2C) & standards (i.e. NSF 140)
 - RFPs, supplier scorecards, etc.
- ***Internal:*** Understand efficiency drivers for process and product design.
 - Process design A versus process design B
 - Product design A versus product design B

Benefits:

1. **DfE:** Provides basic info of where to focus DfE,
2. **R&D Projects:** New Materials, Products, Compositions,
3. **EOL/Product Development:** New Product Designs, Material Substitutions,
4. **Process Engineering:** Technologies, Prioritize Projects,
5. **Strategic Planning:** ROI for Environmental Projects, Prioritize,
6. **Carbon Footprinting:** Provides Scopes 1-3
7. **EcoLabels & Standards:** NSF 140, MBDC C2C, etc.
8. Informs **EPR**
9. **Marketing:** Support Claims, Redirect Focus and Support

1. A strong tool that helps quantify and prioritize environmental impacts.
2. A tool that reviews the whole (cradle to cradle / grave) process to give you a complete environmental picture.
3. It can be used to compare one product to another, but it can be difficult and misleading if the systems, inputs or assumptions are not consistent.
4. Still evolving: Will evolve over time to potentially be the primary determinant of environmental sustainability.

Shaw's LCA Philosophy:

- Continue to enhance our life cycle thinking throughout the company by using LCA to look inward and make improvements, where possible; reduce our environmental footprint, and optimize our product and process designs; and maximize our technology development.

Shaw's LCA Objectives:

- Process efficiency improvements and uncover additional entitlement
- Product design (DfE) improvements
- Technology development optimization



Questions / Discussions

LCA – Examples Chart (Carpet)

Shaw EcoWorx tile compared to industry averages

	EcoWorx	Industry Baseline	Units	% Reductions in Impacts
Greenhouse gas emission loading	229,845	259,624	Metric ton CO ₂ eq.	11.5%
Oceanic Acidification	67,045	73,653	Metric ton CO ₂ eq.	9.0%
Regional Acidification	404	424	Metric ton SO ₂ eq.	4.6%
Ground Level Ozone	254	276	Persons*ppm O ₃ * hours	7.9%
Particulate Matter	182	190	Persons * µg PM-2.5 eq./m ³	4.1%
Non-renewable Energy Depletion	698,549	964,865	Eq. barrels of oil	27.6%

**Reductions are based on a functional unit of 25 million square yards.*